

Active Flutter Suppression of Sports Aircraft Tailplane by Supplementary Control Surface

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Abstract : The paper presents an aircraft flutter suppression by active damping of supplementary control surface at trailing edge. The mathematical model of thin oscillation airfoil with control surface driven by pilot is developed. The supplementary control surface driven by control law is added. Active damping of flutter by several control law is present. The structural model of tailplane with an aerodynamic strip theory based on the airfoil model is developed by a finite element method. The optimization process of stiffness parameters is carried out to match the structural model with results from a ground vibration test of a small sport airplane. The implementation of supplementary control surface driven by control law is present. The active damping of tailplane model is shown.

Keywords : active damping, finite element method, flutter, tailplane model

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